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April 24 2003

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# Environment

DoD Explosives Safety Program  
Oversight  
(D-2003-081)

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Department of Defense  
Office of the Inspector General

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### **Acronyms**

DDESB

DoD Explosives Safety Board



INSPECTOR GENERAL  
DEPARTMENT OF DEFENSE  
400 ARMY NAVY DRIVE  
ARLINGTON, VIRGINIA 22202-4704

April 24, 2003


MEMORANDUM FOR DEPUTY UNDER SECRETARY OF DEFENSE  
(INSTALLATIONS AND ENVIRONMENT)  
CHAIRMAN, DoD EXPLOSIVES SAFETY BOARD

SUBJECT: Report on DoD Explosives Safety Program Oversight  
(Report No. D-2003-081)

We are providing this report for your information and use. We performed the evaluation in response to a request from the Deputy Director, Strategic and Tactical Systems, Munitions, Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics. We considered management comments on a draft of this report when preparing the final report.

Comments on the draft of this report conformed to the requirements of DoD Directive 7650.3 and left no unresolved issues. Therefore, no additional comments are required.

We appreciate the courtesies extended to the staff. Questions should be directed to Mr. William C. Gallagher at (703) 604-9270 (DSN 664-9270) or Ms. Deborah L. Carros at (703) 604-9217 (DSN 664-9217). See Appendix B for the report distribution. The team members are listed inside the back cover.

  
David K. Steensma  
Deputy Assistant Inspector General  
for Auditing

## Office of the Inspector General of the Department of Defense

**Report No. D-2003-081**  
(Project No. D2002CB-0079)

**April 24, 2003**

### **DoD Explosives Safety Program Oversight**

#### **Executive Summary**

**Who Should Read This Report and Why?** DoD civilian and military personnel responsible for management of munitions and explosives safety should read this report. The report discusses program weaknesses associated with inadequate planning and oversight and the need to restructure the DoD oversight board so it will become more effective in identifying and minimizing risks associated with explosives safety hazards.

**Background.** Congress established an ammunition storage board in 1928 as a result of an explosion on July 10, 1926, at the Naval Ammunition Depot, Lake Denmark, New Jersey. The ammunition storage board, which was a joint board made up of military officers, was responsible for informing both the Secretary of War and the Secretary of the Navy about storage conditions for ammunition and explosives. The original joint board evolved into the DoD Explosives Safety Board, an executive-level organization that is responsible for establishing the policy and standards of ammunition and explosives safety and reporting on the effectiveness of its implementation.

**Results.** The DoD Explosives Safety Board did not adequately oversee the DoD Explosives Safety Program. The DoD Explosives Safety Board limited the scope of its responsibility; did not keep fully informed on explosives safety problems within the DoD Components; and did not regularly advise or report explosives safety issues to the Secretary of Defense, the Secretaries of the Military Departments, and the DoD Components. As a result, DoD had not evaluated the overall program performance of explosives safety. In addition, explosives safety problems, weaknesses, and lessons learned were not identified for determining high-risk issues and best practices. Furthermore, DoD cannot ensure the continuous program improvement and risk mitigation necessary for effective management of explosives safety. Revisions to DoD Directive 6055.9, "DoD Explosives Safety Board (DDESB) and DoD Component Explosives Safety Responsibilities," July 29, 1996, are necessary to accurately reflect the DoD Explosives Safety Board authority required for executing oversight functions and responsibilities for explosives safety. Developing a safety management strategy requiring a comprehensive explosives safety program that outlines and clarifies program goals and objectives, identifies essential elements for DoD Component implementation, and includes performance metrics should bring the oversight and improvement needed for this important program. (See the Finding section of the report for the detailed recommendations.)

**Management Comments.** The Deputy Under Secretary of Defense (Installations and Environment) concurred with the recommendations and plans to revise DoD Directive 6055.9, develop a safety management strategy, and restructure the DoD Explosives Safety Board. The revised Directive and safety management strategy are

estimated to be completed in the second quarter of fiscal year 2004. A policy memorandum addressing the restructuring of the DoD Explosives Safety Board is currently being staffed. (See the Finding section for the complete discussion of management actions.)

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## Background

The Deputy Director, Strategic and Tactical Systems, Munitions, Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics requested this evaluation to determine whether policies, procedures, regulations, and organizational structures for management of DoD munitions and explosives safety supported the management of efficient and effective munitions and explosives safety programs.

**Establishment of the DoD Explosives Safety Board.** Congress established an ammunition storage board in 1928 as a result of an explosion on July 10, 1926, at the Naval Ammunition Depot, Lake Denmark, New Jersey. The explosion destroyed the depot, killed 21 people, and seriously injured another 51. The monetary loss, in 1926 dollars, was \$46 million.

Congress directed establishment of an ammunition storage board, which was a joint board made up of military officers, to inform both the Secretary of War and the Secretary of the Navy about storage conditions for ammunition and explosives, with emphasis on prevention of loss of life both within and outside storage reservations. The original joint board evolved into the DoD Explosives Safety Board (DDESB) and was chartered by DoD Directive 6055.9, “DoD Explosives Safety Board (DDESB) and DoD Component Explosives Safety Responsibilities,” July 29, 1996. The DDESB is an executive-level organization responsible for establishing the policy and standards of ammunition and explosives safety and reporting on the effectiveness of its implementation.

**Explosives Safety Responsibilities.** The DDESB reports to the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics through the Deputy Under Secretary of Defense (Installations and Environment). The Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics has principal staff responsibility for DDESB activities and appoints the chairman of the DDESB. The Secretaries of the Military Departments are responsible for developing and maintaining comprehensive and effective explosives safety programs, and the DDESB has program oversight responsibility. The Army provides administrative support to the DDESB, including budgeting, funding, civilian personnel, and security.

**Explosives Safety Management.** Explosives safety management is a “process of risk management, consisting of policies, procedures, and engineering controls, that reduces the probability and the consequences of an ammunition or explosives mishap.” Policies for DoD explosives safety are designed to “limit exposure to the minimum number of persons, for the minimum time, to the minimum amount of ammunition and explosives.” Risk assessment hazard analysis is a process used to make decisions designed to control and minimize hazards and determine acceptable risks.



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**DoD Explosives Stockpile.** The Army Materiel Command, the single manager for conventional ammunition,<sup>1</sup> estimated the DoD explosives stockpile at 2,855,970 tons and that the combined acquisition cost for DoD conventional ammunition and missiles was valued at approximately \$33 billion. DDESB personnel stated that their database contains 642 sites that represent worldwide DoD munitions storage locations.

**DDESB Budget.** The DDESB budget for FY 2002 was \$1.92 million, which included \$1.67 million for payroll. Approximately \$43,000 was allocated for general operations, and travel costs were estimated at \$210,000.

## Explosives Safety Guidance

**United States Code.** Section 172, title 10, United States Code states that a joint board shall be established for ensuring that the Secretaries of the Military Departments are informed about stored supplies of ammunition and components with particular regard to both keeping those supplies properly dispersed and stored and preventing hazardous conditions that endanger life and property inside or outside of storage reservations from arising. Composition of the board includes military officers, civilians, and employees of DoD. The Board members confer with and advise the Secretaries of the Military Departments.

**DoD Directive 6055.9.** DoD Directive 6055.9, “DoD Explosives Safety Board (DDESB) and DoD Component Explosives Safety Responsibilities,” July 29, 1996, establishes the policy and responsibility of the DDESB. The Directive requires that the Military Departments develop and maintain a comprehensive and effective explosives safety program. The Directive also requires that each Military Department Secretary select a member and an alternate. That member has one vote on the DDESB. The Secretariat for each Military Department designates a military member to the DDESB Secretariat. Each Secretary ensures actions are taken that correct DDESB survey findings, provide the DDESB with information and support necessary to discharge its responsibilities and functions, and inform the respective Unified Combatant Commands of any ammunition and explosives situation that could impact on the command’s warfighting capability.

DoD Directive 6055.9 requires that the chairman of the DDESB provide impartial and objective advice to the Secretary of Defense and the DoD Components as well as report explosives safety issues annually to the Secretary of Defense and the Secretaries of the Military Departments. Additionally, DDESB responsibilities include:

- developing standards for ammunition and explosives safety;
- establishing procedures for joint hazard classification;

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<sup>1</sup> Army Materiel Command responsibility for conventional ammunition does not include missiles, torpedoes, mines, underwater devices, or Service-unique items.

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- maintaining liaison with Federal and state agencies and foreign governments, as well as private industry, that have mutual interests or responsibilities;
  - keeping informed on safety matters;
  - providing assistance on request;
  - serving as the DoD advocate on environmental security as it relates to explosives safety;
  - reviewing for approval site plans for explosives safety;
  - developing and conducting research, development, test, and evaluation programs to validate and improve standards for ammunition and explosives safety;
  - reviewing existing DoD real property and the cleanup plans for formerly used defense sites; and
  - conducting surveys that evaluate compliance with ammunition and explosives safety standards.

**DoD 6055.9-Standard.** DoD 6055.9-Standard (STD), “DoD Ammunition and Explosives Safety Standards,” July 1999, establishes uniform safety standards applicable to ammunition and explosives, associated personnel and property, and unrelated personnel and property exposed to potential damaging effects of an accident that involve ammunition and explosives during their development, manufacturing, testing, transportation, handling, storage, maintenance, demilitarization, and disposal. The Standard is mandatory for the Office of the Secretary of Defense, the Military Departments, the Joint Chiefs of Staff, the Combatant Commands, and the Defense agencies.

## Objectives

Our objective was to determine whether management of DoD munitions and explosives safety was adequate and effective. Specifically, this report discusses the oversight responsibilities of the DDESB for explosives safety programs. We evaluated the DDESB policies, procedures, regulations, organizational structures, and command relationships for munitions and explosives safety. We also reviewed the management control program for the DDESB as it related to the overall objective. See Appendix A for a discussion of the scope and methodology and the review of the management control program.

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## **Oversight by the DoD Explosives Safety Board**

The DDESB did not adequately oversee the DoD Explosives Safety Program. Specifically, the DDESB:

- limited the scope of its responsibilities;
- did not keep fully informed on explosives safety problems within the DoD Components; and
- did not regularly advise or report explosives safety issues to the Secretary of Defense, the Secretaries of the Military Departments, and DoD Components.

This occurred because:

- historically, DoD senior managers had not developed a strategy for safety management that required a comprehensive explosives safety program for DoD;
- the DDESB organizational structure inhibited effective program oversight; and
- DoD guidance did not accurately reflect the authority necessary to execute the oversight functions and responsibilities for explosives safety.

As a result, DoD had not evaluated the overall performance of the explosives safety program. In addition, explosives safety problems, weaknesses, and lessons learned were not identified for determining high-risk issues and best practices. Furthermore, DoD cannot ensure the continuous program improvement and risk mitigation necessary for effective management of explosives safety.

## **Explosives Safety Standards**

The standards for DoD explosives safety are established as minimum requirements that identify appropriate and acceptable risk for explosives mishaps. Waivers for those standards are granted in both peacetime and wartime when the need to accomplish a mission is compelling and added risks are specifically deemed acceptable. However, officials that approve and accept added risks to their forces and infrastructure will also elevate the risk to local populations and the ability of the United States to forward deploy and conduct military operations if a disastrous mishap occurs.

DoD policy allows for deviation from approved explosives safety criteria, provided proper authority within the DoD Component accepts the increased risk

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to personnel and property. Explosives safety risks to the public are generally attributable to three sources: inadequate or out-of-date procedures, poorly maintained or poorly designed infrastructure, and unnecessary exposure. Exposure is defined as the amount of explosives with which the public and the environment may be in contact through time or quantity. That amount includes, but is not limited to, quantity-distance limitations, personnel protection measures, and knowledge of the amount and type of ammunition and explosives present. Waivers provide written authority for temporary deviations, normally not to exceed 5 years, from a mandatory requirement. An example of a waiver is a deviation from the required distance between a potential explosives site and an exposed site. Military Department officials with assigned responsibility for the level of risk and with the authority to control the resources for accomplishing corrective action are authorized to grant waivers. Exemptions to standards are written authority that permit long-term noncompliance with explosives safety standards and are granted by law, congressional action, or military officials with assigned responsibility for the level of risk.

Deviations from safety standards lead to risks to human life, property, or the environment. Effective explosives safety management eliminates unnecessary risks, minimizes inherent risks, and directly contributes to operational effectiveness and readiness.

## **DDESB Structure, Mission, and Functions**

The DDESB organization structure has two main components: board membership and a Secretariat. The DDESB chairman presides over the board and directs the Secretariat.

**Board Membership.** Board membership consists of a chairman and one representative from each of the four Services. The chairman holds a full-time position on the board, and the Board members have collateral 3-year assignments in which each member represents the Service position on explosives safety matters. Board members are senior military personnel (O-6 level) or civilian equivalent, and each member has one vote. With the exception of the chairman, each Board member has an alternate, who is authorized to act with plenary powers for the principal, when absent. The DDESB meets formally twice each year and when significant issues require attention.

**Secretariat Structure.** The DDESB is supported by a full-time Secretariat with responsibility for operational and administrative functions. The Secretariat consists of 16 civilian and 5 military personnel, including the chairman of the DDESB. With the exception of the DDESB chairman, Secretariat personnel cannot vote.

The Secretariat has four divisions: operations, technical programs, military representatives, and administrative personnel. The operations division performs installation surveys that assess compliance with explosives safety standards. The operations division also reviews site plans the Services submit for the design of explosives facilities. The technical programs division establishes and maintains

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ammunition and explosives safety standards, identifies issues for consideration at DDESB meetings, and conducts test programs for developing explosives safety standards. The military division consists of four full-time military personnel that represent each of the four Services. The military division personnel serve as liaison between the DDESB and the Military Departments, advise the chairman on the Military Departments' explosives safety policies and operational and logistical items under consideration, and assist the operations division with installation surveys. Military personnel assigned to the Secretariat are rotated to the Services approximately every 3 years.

**DDESB Mission and Functions.** Briefing charts Secretariat personnel provided indicate that the DDESB was recognized in 1928 Federal law with responsibility for safety oversight of DoD explosives. However, Board members and Secretariat officials stated that the DDESB was primarily focused on the storage and siting elements of explosives safety. Secretariat officials stated that the primary mission of the DDESB was to establish DoD standards and advise the Secretary of Defense, Military Departments, Combatant Commands, and other DoD Components on matters concerning explosives safety. Secretariat officials stated that the mission was also concerned with preventing ammunition and explosives-related conditions that would endanger life and property both on and off installations.

## DDESB Operations

DDESB limited the scope of its responsibilities to primarily focus on establishing and maintaining explosives safety standards and on facility-siting matters. DDESB efforts focused on installation-level compliance with standards, and not on its oversight responsibility. The oversight responsibility includes keeping fully informed on explosives safety problems within the DoD Components and reporting to the Secretary of Defense and others on explosives safety issues.

Board members and Secretariat officials stated that their principal functions were accomplished through the Secretariat responsibility for conducting site surveys, reviewing site plans, and developing explosives safety standards for board member review. However, DDESB surveys were generally incomplete, duplicative, and lacked objectivity and value. In addition, the DDESB simply reviewed site plans that did not deviate from explosives safety standards. The DDESB did not have visibility of the more challenging site plans—those that did not meet explosives safety standards—which the Services reviewed and approved.

**DDESB Surveys.** Secretariat personnel stated that they try to conduct explosives safety surveys at all 642 DoD explosives storage sites every 5 years. Secretariat personnel estimated that from October 1994 through June 2002 they performed 997 surveys. Secretariat personnel also stated that they surveyed installations within the continental United States every 3 years and overseas locations every 2 years. The DDESB issued 74 survey reports from October 1994 through June 2002 at the 29 explosives storage sites we either visited or contacted. The 74 survey reports identified and documented deviations between installation

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conditions and existing explosives safety standards. The survey reports included findings, observations, lists of waivers and exemptions specific to the sites, and in some cases, recommendations. In addition, the survey reports documented the location and unit surveyed, the date of the survey, and the names of the survey team members.

Secretariat personnel did not use a risk assessment methodology or trend analysis approach to select survey sites or develop survey content. In addition, the surveys did not assess or evaluate Service explosives safety programs and did not attempt to identify systemic problems, weaknesses, and best practices within the area of explosives safety. Secretariat procedures for planning and performing surveys did not include coordinating with Service activities involved in assessing explosives safety compliance.

**Site Selection and Survey Procedures.** Secretariat officials did not select sites for survey based on the assessed risk associated with the types and amount of explosives maintained at explosives storage sites. In addition, Secretariat officials did not develop a systematic, comprehensive approach for performing surveys that would allow for an assessment of the overall explosives safety performance at an installation. The Director, Operations stated that the Secretariat conducted surveys at every site to ensure that all storage sites comply with the standards. The Director also stated that he developed the 5-year survey site visit plan based on the maximum number of sites that could be surveyed each year given the limited DDESB funding. Two-person teams typically conducted surveys in approximately 1 day. Secretariat personnel stated that the purpose of DDESB surveys was to assess compliance with explosives safety standards and not to evaluate explosives safety program performance. Secretariat personnel also stated that they did not use a standard survey methodology or protocol for conducting surveys because they used DoD 6055.9-STD as a guide.

An August 16, 1989, DDESB memorandum documents procedures for conducting on-site surveys. Procedures identified in the memorandum included reviewing survey files, preparing letters of notification for the installations to be surveyed, submitting travel itineraries for approval, and conducting entrance and exit briefings with installation commanders. The procedures did not address coordinating with Service activities responsible for performing assessments and inspections to obtain information on work performed and findings previously identified at the activities to be surveyed. As a result, the DDESB did not use available information necessary to ensure that it developed and performed value-added surveys.

**Survey Reports Were Incomplete.** Survey reports documented deviations from explosives safety standards but did not describe how or to what extent the surveys were conducted. For example, survey reports did not provide sufficient information on the scope of the survey effort, including the procedures survey team members followed, whether previously documented problems were resolved, and any issues included in the survey that did not result in a finding. Secretariat officials stated that surveys were not intended to assess performance of explosives safety programs and, therefore, were not comprehensive. As a result, the survey reports could not serve as a data source for performing analyses

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for identifying systematic problems, weaknesses, and best practices of the sites DDESB surveyed.

**Survey Findings Were Frequently Duplicative.** Military Department explosives safety personnel and DDESB board members stated that the DDESB surveys were often repeated at the same sites, and the survey reports repeated findings with little or no new information. A review of the 74 survey reports DDESB issued to the 29 sites we visited indicated that 21 of the reports contained a total of 27 repeat findings. Of the 27 repeat findings, 14 findings indicated a need for DDESB-approved explosives safety site plans or the need for resiting explosives facilities. For example, Ramstein Air Base, Germany, had an explosives storage and operations facility and did not have a DDESB-approved site plan. In its 1993, 1995, 1997, and 1999 survey reports on Ramstein Air Base, the DDESB identified the issue as a variance of DoD 6055.9-STD. The remaining 13 repeat findings pertained to quantity-distance violations, inadequate protection, and lack of Service response to DDESB survey reports. An alternate DDESB board member stated that the DDESB lack of authority was the reason for repeating surveys at specific sites because those sites were particularly unresponsive to survey findings. The DDESB visited the sites on an annual basis to report repeat findings and elevate those findings to a higher level. The former DDESB member stated that until the DDESB is given more authority, some activities would continue to ignore survey findings.

DDESB board members stated that DDESB surveys sometimes duplicated Service reviews and assessments. For example, Navy personnel stated that the scope of DDESB surveys often duplicated assessments the Naval Ordnance Safety and Security Activity performed. In addition, Navy inspections for explosives safety include a checklist and prescribed set of procedures to determine the adequacy of installation explosives safety programs and compliance with standards and Navy regulations. Navy and Marine Corps activities are also required to conduct annual “explosives safety self audits” that follow the checklist used for the explosives safety inspections. Army explosives safety personnel also stated that DDESB surveys duplicated the reviews the U.S. Army Technical Center for Explosives Safety performed. The U.S. Army Technical Center for Explosives Safety used a comprehensive plan and checklist to conduct explosives safety reviews and inspections at Army installations.

**Survey Objectivity and Value.** Two DDESB members stated that DDESB surveys were frequently subjective because the Secretariat limited the survey scope to a current hot topic within the explosives safety field. Topic examples included lightning protection and grounding wire stability. Army and Navy explosives safety personnel indicated that personal preferences of DDESB survey team members often dictated whether the special interest items were included in the surveys. One Board member stated that to eliminate subjectivity the survey process needed “defining, refining, and quantifying.” The Board member also stated that survey reports were sometimes confusing and ambiguous.

Army, Navy, and Air Force explosives safety personnel also questioned the value the DDESB surveys added to their explosives safety programs. Personnel at the U.S. Army Technical Center for Explosives Safety stated that the DDESB surveys were subjective and inconsistent because the DDESB did not

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follow a standard approach for conducting the surveys. Weapons safety personnel at Aviano Air Base, Italy, also questioned the value the DDESB surveys added because the DDESB did not use a standardized approach for performing surveys. Army and Navy explosives safety personnel stated that DDESB surveys were too limited in scope and were often conducted in less than 1 day. Edwards Air Force Base, California, personnel stated that DDESB surveys should be performed more frequently and comprehensively. Edwards Air Force Base personnel added that visits of the DDESB survey team were considered a low priority because the team only visited for a short time and was not seen again for a few years. In addition, Army personnel stated that DDESB surveys reflected varying interpretations of the standards based on the Service perspective of the standards for survey team members.

Army explosives safety personnel at Fort Hood, Texas, took issue with the value a 1997 DDESB survey provided regarding an ammunition supply point for a hillside magazine. Army explosives safety personnel stated that applicable explosives safety criteria were based on flat terrain and did not address the unique aspects of a hillside magazine configuration. U.S. Army Technical Center for Explosives Safety personnel performed extensive research, determined that the hillside magazine was more functionally similar to an underground magazine than an earth-covered magazine, and submitted a site plan to the DDESB for the hillside ammunition supply point. The DDESB returned the site plan submission in May 1999 and, according to U.S. Army Technical Center for Explosives Safety personnel, did not provide a viable solution to the problem. The survey report recommended that Fort Hood personnel gather additional hillside topographical data. Site plan approval for the Fort Hood ammunition supply point did not meet explosives safety standards as of November 2002.

#### **Survey Recommendations for Corrective Action. DoD**

Directive 6055.9 requires that the Secretaries of the Military Departments correct DDESB survey findings and provide the DDESB with information and support necessary to discharge its responsibilities and functions. Army and Navy regulations require installations within the continental United States to respond within 90 days to DDESB survey recommendations and require overseas activities to respond within 120 days. Air Force regulations do not require responses within a specific period of time.

Secretariat officials stated that the quality, timeliness, and responsiveness of Services comments to DDESB surveys were generally poor. Secretariat officials stated they issued letters to the Services when responses were not received within required time frames. A January 25, 2002, overdue response letter from the DDESB to the Army indicated that the Army failed to respond to 142 survey reports issued between 1999 through 2001. A similar letter to the Air Force on the same date indicated that the Air Force failed to respond to 39 survey reports issued between 1998 through 2001. Corrective actions remained open until a response was received from the Service or the next survey was conducted at the activity. As a result, Secretariat officials were unaware of the status of corrective actions for activities that failed to respond to survey report recommendations.



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**Site Plan Review for Compliance With Explosives Safety Standards.** The DDESB Secretariat reviewed and approved site plans for construction and modification of explosives storage facilities that would ensure compliance with DoD explosives safety standards. The Military Departments developed and reviewed site plans for technical compliance before approving and submitting the plans to the DDESB. The Naval Ordnance Safety and Security Activity, the U.S. Army Technical Center for Explosives Safety, and the Air Force Safety Center were responsible for approving and submitting site plans to the DDESB. The DDESB Secretariat was responsible for site plan review and approval. However, the Secretariat did not review site plan submissions that included deviations from the DoD explosives safety standards. The Services were responsible for issuing and approving waivers and exemptions to the standards for site plans not in full compliance. Secretariat personnel stated that they devoted approximately one-third of their time to explosives site plan review and approval. Secretariat personnel stated that approximately 50 percent of all site plans received required major revision to comply with the standards.

Air Force explosives safety personnel challenged the logic of the explosives site plan approval process, stating that the Air Force Safety Center had final approval, with exceptions on Air Force site plans, and the DDESB, a higher-level authority, had final approval without exceptions on site plans. The Air Force explosives safety personnel questioned the DDESB lack of scrutiny and review of the more challenging explosives site plans—those that did not meet standards—and stated that site plans without exceptions did not need DDESB-level review. Air Force explosives safety personnel proposed that approval authority for exception-free site plans should be delegated to the Air Force major commands, and the Office of the Secretary of the Air Force should approve site plans with exceptions. The Air Force personnel stated that the proposal to lower approval authority for exception-free site plans would reduce the exception-free site plan approval process from 12 to 24 months to 6 to 12 months. The Air Force proposal required any site plan go to the DDESB for information purposes.

The DDESB did not effectively execute its oversight responsibilities in the site plan approval process for explosives safety because DDESB personnel were not involved in reviewing site plans that deviated from explosives safety criteria. As an oversight organization, the DDESB should be aware of the risks the Services accept and should be involved in helping the Services mitigate the risks whenever possible. The DDESB needs to focus more on the Services' overall explosives safety programs and how to improve and evaluate Service programs and less on site plans that the Services have reviewed and approved in accordance with the standards.

**DDESB Reporting Requirement.** DoD Directive 6055.9 requires that the DDESB chairman annually report to the Secretary of Defense and the Secretaries of the Military Departments. However, the DDESB had not submitted an annual report since 1995. DDESB personnel stated that they discontinued the annual report to the Office of the Secretary of Defense because the Military Departments indicated that the annual report was redundant and did not provide value. DDESB officials also stated that development of the report required significant resources and that they did not receive feedback from the Office of the Secretary

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of Defense. As a result, the DDESB did not prepare a program performance report for explosives safety.

## **Explosives Safety Management Program Planning and Oversight Deficiencies**

The Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics had not developed a safety management strategy that required a comprehensive DoD explosives safety program. In addition, the DDESB organizational structure constrained the objectivity and independence of the members and inhibited effective oversight of the program.

**Safety Management Strategy.** Historically, the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics<sup>2</sup> had not developed a safety management strategy or required that the DDESB outline and clarify explosives safety goals, objectives, and program expectations. As a result, the DDESB did not have clearly defined goals or objectives nor did they ensure that the functional operations were sufficient for accomplishing its basic mission of explosives safety program oversight. A comprehensive explosives safety program that outlines goals, objectives, and overall program expectations should enable the DDESB to focus its operations on oversight initiatives. DDESB personnel acknowledged that DoD had not established a comprehensive explosives safety program and had not identified essential elements for implementation of the program for DoD Components. DDESB personnel also recognized the lack of established metrics for monitoring performance.

**DDESB Objectivity, Independence, and Authority.** The DDESB organizational structure inhibited effective program oversight. In addition, the DDESB was an established, executive-level board with oversight responsibilities for the explosives safety program. However, DoD Directive 6055.9 did not accurately reflect the authority necessary for executing explosives safety oversight functions and responsibilities.

**Objectivity and Independence.** DDESB board members represented the Services' perspective through their voting power on explosives safety standards. Secretariat personnel stated that Board members had reduced the requirements documented in DoD 6055.9-STD because of the costs associated with implementing new or revised standards. Secretariat personnel also stated that Board members were concerned with costs to the Services of proposed changes instead of being focused on safety measures that were in the best interest of the Department. Conversely, Board members stated that when Secretariat personnel recommended changes to the standards, Secretariat personnel did not take into consideration costs, the existing level of explosives safety protection, and the lack

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<sup>2</sup> In its FY 2000 Annual Report to Congress on the Defense Environmental Quality Program, the Office of the Deputy Under Secretary of Defense (Installations and Environment) stated that the Munitions Action Plan, issued in November 2001, identified actions that would help maintain combat readiness through improved environmental stewardship and enhanced explosives safety compliance. The report did not specifically address explosives safety management.

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of major disasters related to explosives safety. Board members also stated that sufficient consideration was not given to the costs associated with proposed changes to the standards because the DDESB was not responsible for funding the approved changes.

In 1997, the DDESB Secretariat proposed that the DDESB board members consider identifying specific elements of an effective explosives safety program for incorporation into the DoD Standards. According to a member of the Secretariat, the proposal was not considered for action because the Board members considered the individual Military Department explosives safety programs to be adequate. However, the DDESB had not assessed explosives safety programs of the Services and had no data on whether program performance was adequate. The Board members did not demonstrate the independence and objectivity necessary to make decisions from a program oversight perspective and appeared to vote on an important issue without independent, substantive data. As a result, Secretariat personnel failed in their attempt to correct a program weakness because of the voting authority delegated to the military representatives on the board.

**DDESB Authority.** DoD Directive 6055.9 does not accurately reflect the authority necessary to execute explosives safety oversight functions and responsibilities. Specifically, the Directive does not require overall program performance assessments; periodic review of Services' explosives safety programs; or standardizing explosives safety program elements to promote best business practices when appropriate. In addition, the Directive constrains oversight initiatives by dictating the organizational structure of the DDESB.

## **Lack of Explosives Safety Program Evaluation**

The Military Departments were responsible for establishing and maintaining aggressive explosives safety programs, but the DDESB did not evaluate or assess the effectiveness of program performance for each Service. In addition, the DDESB had not implemented a corporate data management system necessary for capturing, analyzing, and reporting explosives safety information. Also, some Board members were unaware of the DDESB oversight mission. As a result, the DDESB did not have the information necessary for keeping fully informed on explosives safety problems, weaknesses, and trends within the DoD Components or advising and reporting to the Secretary of Defense and DoD Components on the effectiveness of explosives safety policy and standards implementation, as DoD Directive 6055.9 requires. Furthermore, the DDESB cannot meet its mission to provide effective program oversight without the policies that define an effective program and a performance measurement system for evaluating program performance (that is, success at achieving documented goals and objectives).

**DoD Explosives Safety Program Evaluation.** The DoD had not established a system for measuring the performance of the DoD explosives safety program. The DDESB had not, therefore, assessed overall effectiveness of the explosives safety program. An effective evaluation system is necessary for identifying and correcting program deficiencies as well as continuously improving performance

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of the program. Although each Service had instituted an explosives safety program and the same explosives safety standards applied to all, DoD did not have a uniform set of measurements for evaluating the effectiveness of the programs. For example, DoD 6055.9-STD allows each Service to establish and maintain its own waiver and exemption program. Each Service established its own definitions and methodology for managing waivers and exemptions to the standards. In addition, interpretations of explosives safety standards often varied with Service member perspective. Secretariat officials stated that the lack of standardization among the Services makes analysis and comparison of risks difficult.

**Corporate Data Management System.** The DDESB had not implemented a corporate data management system necessary for capturing, analyzing, and reporting explosives safety information. The Services had responsibility for their explosives safety programs and performed different types of assessments and inspections of explosives safety for their activities. The DDESB had no system for reviewing Service explosives safety data necessary for program evaluation. For example, the Defense Ammunition Center, an Army-managed ammunition supply activity, maintained and managed a system for collecting and analyzing explosives safety mishap data. The Army, Navy, and Air Force submitted mishap data to the Defense Ammunition Center, but Defense Ammunition Center personnel stated that the data were incomplete and that only Army data were reviewed and analyzed. As a result, the DDESB could not capture or analyze mishap data necessary to effectively evaluate overall explosives safety program performance.

**Board Members Unaware of Oversight Responsibility.** Two Board members stated that they were not aware of DDESB program oversight responsibilities and, therefore, had not developed oversight initiatives. The Board members also stated that they believed the primary responsibility of the DDESB was developing explosives safety standards. One Board member stated that the DDESB members could not perform the functions required of the oversight mission through collateral duty assignments. He also stated that both of his duty assignments were in the area of explosives safety, but his DDESB responsibilities were generally limited to attending approximately two meetings each year.

## Conclusions

The DDESB did not adequately oversee the DoD Explosives Safety Program. The DDESB limited the scope of its responsibilities and did not:

- keep fully informed on explosives safety problems within the DoD Components; or
- regularly advise or report to the Secretary of Defense and the Secretaries of the Military Departments on explosives safety issues.

The DDESB did not keep fully informed on explosives safety problems nor did it develop and maintain the knowledge that would provide an overall assessment of

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the performance of the DoD Explosives Safety Program. Information Secretariat officials obtained during explosives safety surveys was not sufficient for evaluating the program elements of explosives safety, identifying trends, or assessing explosives safety risks. Additionally, the DDESB did not request

explosives safety data from the Services or access available data maintained by others. Furthermore, the DDESB had not attempted to assess or evaluate the Services' explosives safety programs.

DoD did not have a strategy for addressing explosives safety and had not implemented a comprehensive explosives safety program. DDESB functions and expertise were primarily focused on establishing and maintaining standards for explosives safety and on facility-siting matters. Emerging missions, acquisition reform, interoperability, and life-cycle management are considerations that strain and challenge the management systems for munitions and explosives safety. DDESB operations should focus less on installation-level compliance with standards and more on the challenging issues facing managers of explosives safety programs today. DDESB officials acknowledged several challenging issues that require DoD-level attention and coordination, but the historical focus of DDESB personnel on surveys and site plan reviews divert critical resources from important oversight issues. Inadequate program planning and organizational deficiencies within the DDESB structure have prevented the DDESB from establishing effective, proactive oversight. Collateral-duty, rotational assignments from the Military Departments do not invest the DDESB with the independence and objectivity necessary to execute agency-level oversight decisions. As a result, the DDESB has not established the credibility and leadership typically attributed to an executive-level oversight organization. Many DDESB Secretariat personnel have extensive experience and expertise, but program plans, goals, and objectives need to be identified to properly structure the DDESB for effective oversight of the explosives safety program. The DDESB must lead the DoD in explosives safety and ensure that efforts to minimize risks are identified and implemented. Proactive oversight of the program will identify weaknesses, inform policy makers, and, therefore, help to mitigate any risk inherent to explosives safety operations. Until DDESB operations are aligned with its oversight mission, the DDESB will be unable to identify and elevate the most essential, high-risk explosives safety issues to decision makers.

## **Recommendations, Management Comments, and Audit Response**

**We recommend the Deputy Under Secretary of Defense (Installations and Environment):**

**1. Revise DoD Directive 6055.9, "DoD Explosives Safety Board (DDESB) and DoD Component Explosives Safety Responsibilities," July 29, 1996, to clearly establish DoD Explosives Safety Board roles and responsibilities for program oversight, policy development and implementation, and other necessary explosives safety program management**

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**functions and responsibilities. The revision should require that the DoD Explosives Safety Board:**

**a. Provide oversight of deviations from explosives safety standards that will ensure any added risk is understood and acceptable by the appropriate authorities.**

**b. Establish systematic and comprehensive procedures in accordance with established performance measures for evaluating the effectiveness of the Services' explosives safety programs.**

**c. Establish or identify and implement a corporate data management system that captures, analyzes, and reports explosives safety information related to key explosives safety risk issues, explosives safety deficiencies, and corrective actions from DoD Components.**

**d. Perform periodic assessments of Service explosives safety programs that identify program strengths and weaknesses as they relate to program goals and objectives.**

**e. Report explosives safety issues and continuous program improvement efforts annually, at a minimum, to the Secretary of Defense and Secretaries of the Military Departments.**

**Management Comments.** The Deputy Under Secretary of Defense (Installations and Environment) concurred and plans to revise DoD Directive 6055.9 to accurately reflect the oversight mission, functions, and responsibilities of the DoD Explosives Safety Board. The Directive is estimated to be completed in the second quarter of fiscal year 2004.

**2. Develop a safety management strategy that requires a comprehensive DoD explosives safety program that will:**

**a. Establish formal plans and policies.**

**b. Outline and clarify program goals and objectives for explosives safety.**

**c. Identify essential elements for DoD Component implementation of explosives safety programs.**

**d. Include performance metrics that will evaluate accomplishment of specific goals and objectives.**

**Management Comments.** The Deputy Under Secretary of Defense (Installations and Environment) concurred and stated that explosives safety experts from the Services are developing a DoD Explosives Safety Board strategy that will include revised mission and vision statements as well as a 7-year plan. This strategy is estimated to be completed in the second quarter of fiscal year 2004.

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**3. Restructure the DoD Explosives Safety Board to:**

**a. Ensure independent, objective, and full-time membership with executive-level oversight responsibilities.**

**b. Address Recommendations 1. and 2. above and shortcomings associated with the prevailing functions and activities of the DoD Explosives Safety Board.**

**Management Comments.** The Deputy Under Secretary of Defense (Installations and Environment) concurred with the recommendation, stating that a policy memorandum is currently being staffed.

**Audit Response.** The Office of the Deputy Under Secretary of Defense (Installations and Environment) comments were responsive. We confirmed with the Office of the Deputy Under Secretary of Defense (Installations and Environment) that the policy memorandum addresses restructuring the DoD Explosives Safety Board.

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## Appendix A. Scope and Methodology

We reviewed documentation dated December 1927 through September 2002. To accomplish the evaluation objective, we:

- reviewed DoD and Military Department policies, procedures, regulations, organizational structures, and command relationships for munitions and explosives safety;
- interviewed DDESB members to determine their program oversight responsibilities as well as independence;
- reviewed 74 DDESB survey reports for the 29 sites we visited or contacted to evaluate survey completeness, frequency, objectivity, and value;
- interviewed personnel from the Air Force Safety Center, the U.S. Army Technical Center for Explosives Safety, and the Naval Ordnance Safety and Security Activity that maintain documentation for explosives safety; and
- interviewed explosives safety personnel from various Service installations and major commands to identify concerns with the DDESB.

We performed this evaluation from February 2002 through February 2003 according to standards implemented by the Inspector General of the Department of Defense. We did not review explosives safety management issues for DoD agencies. We also did not review physical security, training exercises, and mishap response. Further, the scope of this evaluation did not include chemical agents, nuclear weapons, or munitions maintained on ships.

**Use of Computer-Processed Data.** To achieve the evaluation objectives, we relied on computer-processed data contained in the DDESB survey database. Although we did not perform a formal reliability assessment of the computer-processed data, we determined that the number and dates of DDESB surveys did not always match the hard copy documentation maintained by the DDESB. However, we did not find errors that would preclude the use of the computer-processed data to meet the evaluation objectives or that would change the conclusions in this report.

**General Accounting Office High-Risk Area.** The General Accounting Office has identified several high-risk areas in DoD. This report provides coverage of the DoD high-risk area identified as, “Overcome support infrastructure inefficiencies.”



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## Management Control Program Review

DoD Directive 5010.38, “Management Control (MC) Program,” August 26, 1996, and DoD Instruction 5010.40, “Management Control (MC) Program Procedures,” August 28, 1996, require DoD organizations to implement a comprehensive system of management controls that provides reasonable assurance that programs are operating as intended and to evaluate the adequacy of the controls.

**Scope of the Review of the Management Control Program.** We reviewed the adequacy of DDESB management controls for performing oversight for management of the DoD Explosives Safety Program. We also reviewed management’s self-evaluation applicable to those controls.

**Adequacy of the Management Controls.** We identified material management control weaknesses as defined by DoD Instruction 5010.40. Controls for the oversight of the explosives safety program did not ensure that the DoD Explosives Safety Program was adequate and efficient. Implementation of the recommendations for developing a strategic plan that outlines goals and objectives for explosives safety programs, providing annual performance reports for explosives safety programs, and establishing procedures for evaluating the effectiveness of the Service explosives safety programs in accordance with established performance measures should correct the weaknesses. A copy of the report will be sent to the senior official responsible for management controls in the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics and the DDESB.

**Adequacy of Management’s Self-Evaluation.** DDESB conducted self-evaluations of office and administrative procedures rather than program areas. As a result, when DDESB performed its self-evaluation, the review was limited to internal management of accounting and administrative controls and did not address the operational procedures for mission oversight requirements for explosives safety.

## Prior Coverage

During the last 5 years, no reports addressing the DoD Explosives Safety Program were issued.

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## **Appendix B. Report Distribution**

### **Office of the Secretary of Defense**

Under Secretary of Defense for Acquisition, Technology, and Logistics  
Deputy Under Secretary of Defense (Installations and Environment)  
Chairman, Department of Defense Explosives Safety Board  
Under Secretary of Defense (Comptroller)/Chief Financial Officer  
Deputy Chief Financial Officer  
Deputy Comptroller (Program/Budget)

### **Department of the Army**

Assistant Secretary of the Army (Financial Management and Controller)  
Auditor General, Department of the Army

### **Department of the Navy**

Naval Inspector General  
Auditor General, Department of the Navy

### **Department of the Air Force**

Assistant Secretary of the Air Force (Financial Management and Comptroller)  
Auditor General, Department of the Air Force

### **Non-Defense Federal Organizations and Individuals**

Office of Management and Budget

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## **Congressional Committees and Subcommittees, Chairman and Ranking Minority Member**

Senate Committee on Appropriations  
Senate Subcommittee on Defense, Committee on Appropriations  
Senate Committee on Armed Services  
Senate Committee on Governmental Affairs  
House Committee on Appropriations  
House Subcommittee on Defense, Committee on Appropriations  
House Committee on Armed Services  
House Committee on Government Reform  
House Subcommittee on Government Efficiency and Financial Management, Committee on Government Reform  
House Subcommittee on National Security, Emerging Threats, and International Relations, Committee on Government Reform  
House Subcommittee on Technology, Information Policy, Intergovernmental Relations, and the Census, Committee on Government Reform

# Office of the Deputy Under Secretary of Defense (Installations and Environment) Comments



OFFICE OF THE UNDER SECRETARY OF DEFENSE  
3000 DEFENSE PENTAGON  
WASHINGTON, DC 20301-3000

APR 04 2003

MEMORANDUM FOR INSPECTOR GENERAL OF THE DEPARTMENT OF DEFENSE

SUBJECT: Management Comments to Report on DoD Explosives Safety Program Oversight (Project No. D2002CB-079)

We have reviewed the report and concur with the findings and recommendations. Our actions in response to the report are outlined below.

A policy memorandum addressing selected recommendations is currently being staffed.

We plan to revise DoD Directive 6055.9, "DoD Explosives Safety Board (DDESB) and DoD Component Explosives Safety Responsibilities," to accurately reflect the oversight mission, functions and responsibilities of the DoD Explosives Safety Board. We anticipate release of the document in the second quarter of fiscal year 2004.

Further, explosives safety experts from the military services are developing a DDESB strategy that will include revised mission and vision statements as well as a seven-year plan. We expect this strategy to also be published in the second quarter of fiscal year 2004.

A handwritten signature in black ink, appearing to read "Raymond F. DuBois".

Raymond F. DuBois  
Deputy Under Secretary of Defense  
(Installations and Environment)



## **Team Members**

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